

# A Case History of Non-Causational Autism and Hearing Loss Diagnoses

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## Introduction

This case study will be looking retroactively at one now 20-year-old white male's case history—for privacy purposes, our participant will be referred to as ZG—reviewing his Autism Spectrum Disorder (ASD) diagnosis, his bilateral hearing loss diagnosis, and treatment services he received. This study will review literature relating to those who have had similar dual diagnoses, how one can look like the other by discussing symptoms of both and where they overlap, and what treatment was given to those patients. By the end, the author will infer if the best choices were made given his diagnoses and which diagnosis was given precedence in his life.

## Definitions

Applied Behavior Analysis (ABA)	A highly systematic instructional approach grounded in the principles of behavioral therapy; often used to teach new skills or address behaviors that are regarded problematic (ASHA, n.d.-a)
ASD	A disorder categorized by challenges with communication and social skills and repetitive behaviors or restricted interests (ASHA, 2009)
Cholesteatoma	A benign collections of keratinized squamous epithelium within the middle ear (Kennedy & Singh, 2020)
Hearing Loss	Partial or total inability to hear; can be categorized as conductive, sensorineural, or mixed (ASHA, n.d.-b)
Individualized Education Plan	A legal and binding document that is developed for every student who receives special education services (ASHA, n.d.-c)

Table 1. Definitions of terms used in description of ZG's history.

## Autism vs Hearing Loss

ASD and hearing loss have many similar symptoms, which often makes diagnosing difficult when a child is young. In fact, "estimates of the prevalence rates of ASD in the general population are 1 in 68, whereas prevalence of ASD in children who are deaf or hard of hearing is 1 in 59" (Szarkowski & Johnston, 2018, pg. 1).

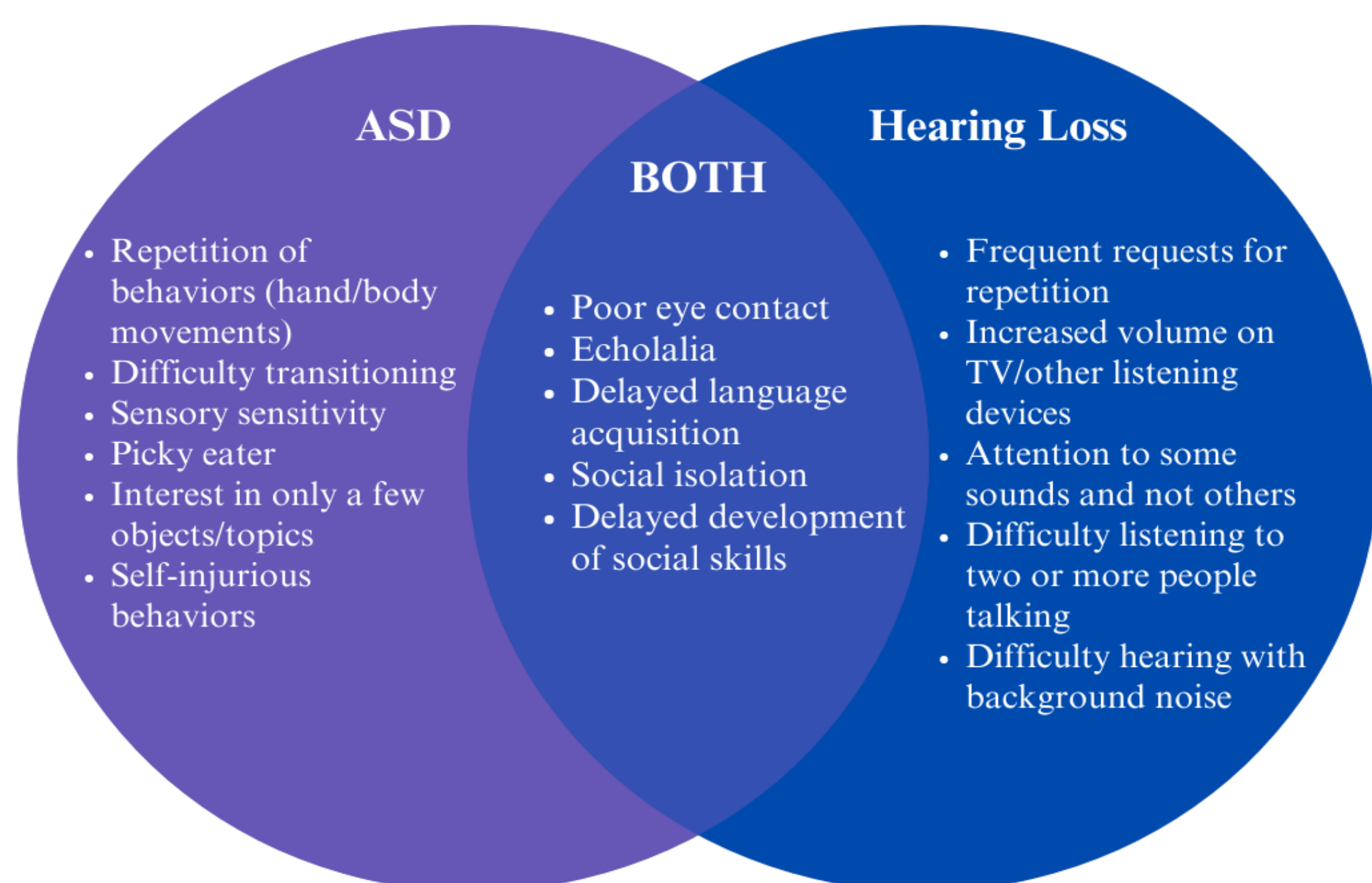


Figure 1. Venn Diagram showing symptoms of just ASD, just hearing loss, and symptoms present in both (ASHA, 2009, n.d.-b).

## Case Study Participant

ZG was diagnosed with ASD at 3-years-old based on results from the GARS Autism Rating Scale. His symptoms included struggle with communication, echolalia, not pointing at objects, eye contact avoidance, and difficulty with transitions leading to meltdowns. Over the years, services for his diagnosis included: in-home ABA therapy, Early Childhood Special Education Program in his school district, and had an Individualized Education Plan, or IEP, (American Speech-Language-Hearing Association [ASHA], n.d.-c) throughout his entire school career. His early goals focused primarily on behavior management, language goals, and social skills. As he got older, these goals became more pragmatic in nature, focusing on social behavior.

ZG's hearing loss diagnosis is a bilateral mixed hearing loss. His hearing loss is most significant with high pitches. The loss in left ear is sensorineural and secondary to chronic ear infections and tube placement and the loss in the right ear is secondary to cholesteatoma. Over time, his loss has increased, but has mostly been stable for last few years, although ZG claims more loss recently with high pitch sounds. He received no specific therapy focusing on his hearing loss and received hearing aids when he was 8-years-old. ZG's hearing loss history is complicated. Table 2 demonstrates the medical and hearing aid events before, during, and after his diagnosis.

Age	Ear(s)	Event
8 years	Left, Right	L: myringotomy and tube insertion R: tympanomastoidectomy Hearing Loss: L: moderate CHL R: moderate CHL
8 years	Left, Right	Received first pair of hearing aids
9 years	Left, Right	L: tube reinsertion R: revision postauricular tympanoplasty Hearing Loss: L: mild to moderately-severe MHL R: moderate to moderately-severe CHL
10 years	Left, Right	L: myringotomy and Triune tube insertion R: evaluation Hearing Loss: L: normal to moderately-severe MHL R: mild to moderately-severe MHL
12 years	Left, Right	L: ongoing hearing loss R: recurrent cholesteatoma Hearing Loss: L: severe MHL R: moderate to severe MHL

L – left ear, R – right ear, MHL – mixed hearing loss, CHL – conductive hearing loss

Table 2. ZG's hearing history from age 8- to 12-years-old.

After a thorough review, it is evident that services for ASD took precedence for ZG. Even after his diagnosis of bilateral mixed hearing loss, his IEP goals remained similar but an accommodation stating that he could have preferential seating if he asked was written in. There was some disruption in school as he would miss days for some of his surgeries, but otherwise, this diagnosis was not significantly impacting his day-to-day at school to require a 504 plan, an outline [of] accommodations that a student needs to access the educational curriculum (ASHA, n.d.-c). As of now, ZG has the ability to do tasks independently at home, school, and work, and is able to use his hearing aids independently.

## Literature Review

Two journals were used as a comparison to look at similarities and differences between diagnosis times, overlap in symptoms, and what intervention services looked like.

In the first journal, experiences between four different families of children with dual diagnoses was compared (Myck-Wayne et al., 2011). In summary, all four children were given a diagnosis of deaf or hard of hearing (D/HH) before their ASD diagnosis. Three out of four participants were given cochlear implants, while the other was given hearing aids. All children were diagnosed as D/HH between birth-36 months. All children were diagnosed with ASD anywhere between 8-48 months after their D/HH diagnosis. All 4 children received ABA therapy for their ASD diagnosis and focused on behavioral issues rather than hearing-related issues. D/HH intervention was provided either by the ABA providers or D/HH providers would attempt to work with the ABA providers. Treatment for D/HH included Auditory Visual Therapy (AVT) which focused on response to sound and vocal play or communication through American Sign Language (ASL), signs, and Picture Exchange Communication Systems (PECS). According to current placements, 2 of the 4 children are ASD focused with D/HH supports, one of the 4 is D/HH with supports, and the other is unknown.

In the second journal, experiences were collected from 38 families of children with just ASD diagnoses in Mexico (Cohen et al., 2022). In summary, an ASD diagnosis was made anywhere from 1-11 years of age, the most common age being 6. Six out of the thirty-eight participants had a second diagnosis, none of which are hearing related. All received various services for their ASD, including early intervention, services through school, and one-on-one home intervention (ABA was noted as one of the home intervention methods). Symptoms of some of the participants when first diagnosed included aggressive behaviors, lack of attention, and difficulty with speech/communication.

## Conclusion

It can never be known if things would be different if ZG's treatment had gone a different route. Since there is evidence that ZG has been successful in many ways since his initial ASD and hearing loss diagnosis, it is fair to consider the treatments that were used with ZG could be successful for others going through a similar experience. For children who may be experiencing equally impactful dual diagnoses or a more impactful hearing loss diagnosis, ZG's experience may not be as helpful, as hearing loss intervention was not his focus. One treatment method that was prevalent among the case study participant and the literature review participants was the use of ABA therapy; this is one method that seems efficient for those with dual diagnoses. Regardless, it is beneficial to look into all possibilities sooner rather than later in order to maximize treatment efficacy.

## References and Resources

